

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

December 28, 2009

TO: Internal File

THRU: James D. Smith, Permit Supervisor

FROM: April A. Abate, Hydrologist, Team Lead *RAA 12-27-10*

RE: Phase I Bond Release for Crandall Canyon portion of the Willow Creek Mine, C/007/0038, Task ID #3453

SUMMARY:

On November 13, 2009, Plateau Mining Corporation submitted an application for Phase I bond release and requested bond release on 32.96 acres of land in the Crandall Canyon tract of the Willow Creek Mine. The Crandall Canyon facilities were initially reclaimed in 2003. The designated post-mining land use for Crandall Canyon is wildlife habitat, grazing and other recreational uses.

The application also contains the necessary items for administrative completeness such as: notarized signature, notification letters to all stakeholders, and a newspaper advertisement. Reclamation work in Crandall Canyon consisted of demolition of surface facilities, backfilling of the shafts, and backfilling, grading, mulching and seeding of the canyon sidewall areas. An access road through the canyon will remain as part of the post-mining land use. According to the application, the landowners have requested the access road remain in order to provide access and egress to their land.

All engineering and hydrology reclamation requirements for a complete application package such as backfilling, regarding, and drainage control measures have been addressed in the Phase I Bond Release application. However, the following minor deficiencies to the Phase I Bond application package should be made prior to final approval of Phase I Bond Release of Crandall Canyon:

- Under the general maintenance portion of the application, Section 3.7-4(11) under the "Ponds" heading, the MRP still contains language discussing the maintenance of the sediment ponds within Crandall Canyon. This section should be removed, as it is no longer applicable to conditions at the site.
- Page 3.7X-17 of the Phase I Bond Release application incorrectly states that spring sample B-22-1 will be monitored quarterly. According to the Division water quality

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database and Table 4.7-3, this is an inactive sampling point and thus should be deleted from the application.

Final approval for Phase I bond release is contingent upon an inspection of Crandall Canyon to assess hydrologic reclamation features that would include but not be limited to: restoration of natural drainage channels and any evidence of erosion of canyon sidewalls and at the in-place culverts below the existing road.

TECHNICAL ANALYSIS:

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The reclamation is described in the Willow Creek Mine MRP, Volume 1, Section 5.0: hydrology is described in Section 5.5 of Volume 1. The plan indicates that upon removal of the sediment ponds 014 and 015 in Crandall Canyon, straw hay bales and silt fencing were to be used as the primary reclamation sediment control methods. According to the application, actual alternative sediment control measures implemented included, hay mulch, deep gouging of growth media, seeding followed by additional mulch and application of chemical treatment to the final mulch layer. The Applicant also goes on to state that any weakness in the implementation of the sediment control plan such as gullies that form a greater than 9-inch depth in areas lacking vegetation will be remedied.

According to the application, all culverts used during mine operations to route the undisturbed runoff under the facilities pad were removed during reclamation. The only operational-phase culverts that remain in Crandall Canyon are associated with the road left in place for the purposes of controlling road runoff. In some instances, swales were installed to replace select culverts in order to reduce maintenance. A map detailing the remaining culverts and ditches was included as Exhibit 3.7-12AB.

Phase I reclamation of Crandall Canyon began in 2003 and was initially completed in the fall of 2003. The shafts in the canyon experienced some settling during the initial backfilling activities and required additional grading and reseeding repair. The regrading and reseeding was completed to final configuration by July 2008. The Reclamation Plan in the current MRP was followed.

There are two stream sample locations, B25 and B26 within Crandall Canyon that are monitored on a quarterly basis. Stream sample B25 appears to be located upstream on the Martineau property. According to the Division water quality monitoring database, neither location has recorded any flow since 2002. The application states that stream and spring points B26 and B-22-1, respectively are within the Phase I bond release area; however B22-1 has been inactive since 2002 and not listed as a quarterly monitoring sampling point according to Table 4.7-3 in the MRP.

Findings:

Under the general maintenance portion of the application, Section 3.7-4(11) under the "Ponds" heading, the MRP still contains language discussing the maintenance of the sediment ponds within Crandall Canyon. This section should be removed, as it is no longer applicable to conditions at the site.

Page 3.7X-17 of the Phase I Bond Release application incorrectly states that spring sample B-22-1 will be monitored quarterly. According to the Division water quality database and Table 4.7-3, this is an inactive sampling point and thus should be deleted from the application.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The post mining land use rules require that all disturbed mined land be returned and restored in a timely manner to conditions that existed prior to mining and that the land can support the post mining land use. In this case, the approved post mining land use is wildlife hunting, grazing and recreational uses.

The applicant has constructed a road in Crandall Canyon that has replaced the primary road that existed during the operational phase. Adjacent landowners have requested that the road remain in place in order to continue access to the canyon for their own ingress and egress to their property for recreational uses. Letters and comments concerning leaving the road in place are

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included in Appendix 3.7V of the MRP. The letters were reviewed by the Division and were found not to have any opposition to leaving the road in place from any of the stakeholders.

Findings:

Post-mining land uses meets the requirements of the Coal Mining Rules.

APPROXIMATE ORIGINAL CONTOUR (AOC) RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The Permittee has restored the canyon through the area previously occupied by mine shafts and sedimentation ponds. Steep sidewalls and a broad bottom characterize canyon topography. The Permittee has reclaimed the canyon bottom by aligning the channel near the center of the canyon floor. Concave fill slopes have been constructed to extend from the undisturbed boundary to the reclaimed channel. The fill slopes have been configured this way to be less than the angle of repose for the backfill and flatter than a 2:1 slope in most areas. Topographic highs have been constructed in the areas of the former shafts. Some cut slope areas have been retained on one of the side canyons located on the south side of the road. According to the applicant, the cut slopes were necessary to retain the required safety factor of 1.3. The cut slopes have not shown signs of instability to date.

Findings:

The draft application package contains cross sections of areas within the reclaimed stream channel on Exhibit 3.7-14AB. The Permittee has provided adequate information contained in the application package pertaining to AOC. The bond release inspection will evaluate the effectiveness of how well the restored the topography corresponds to AOC.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

Two shafts in Crandall Canyon were backfilled during the summer of 2003. Each of the shafts experienced variable amounts of settlement requiring additional backfill to stabilize each

shaft. In July 2008, after the backfill was allowed to further settle in the shafts, backfilled soil was excavated to depths of up to two feet below the collar and bentonite was emplaced on the soil to create a seal and prevent future settling.

The initial backfilling and grading in Crandall Canyon occurred in 2003. Seedlings were planted in fall of 2004. The initial repairs of the shafts began in 2005 and again in 2008 where they were reseeded. The entire site has now been reclaimed to final configuration.

Findings:

Backfilling and grading meet the Coal Mining Rules requirements.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

The applicant intends to keep the primary access road into the canyon claiming that the road will have many benefits to the watershed and has been built to blend in with the reclaimed surface topography. This road has been approved as part of the post mining land use and will be designated as a private road with a locked gate restricting entry. Additionally, the adjoining landowners have filed requests to the Division to keep the road in place in order to facilitate access to their property. The landowners have indicated that they will responsible for the maintenance of the road and associated drainage controls on their property.

Findings:

The road system through Crandall Canyon has been approved to meet the requirements of Phase I Bond Release and meets the s Coal Mining Rules requirements.

RECOMMENDATIONS:

All hydrology reclamation requirements for a complete application package such as backfilling, regrading, and drainage control measures have been met for Phase I Bond Release approval. However, the following minor text edits to the Phase I Bond application package should be made prior to final approval of Phase I Bond Release of Crandall Canyon:

- Under the general maintenance portion of the application, Section 3.7-4(11) under the "Ponds" heading, the MRP still contains language discussing the maintenance of the sediment ponds within Crandall Canyon. This section should be removed, as it is no longer applicable to conditions at the site.

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